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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,507	07/08/2005	Takushi Yoshida	P/1250-293	2987
2352 7590 11/18/2008 OSTROLENK FABER GERB & SOFFEN 1180 AVENUE OF THE AMERICAS NEW YORK, NY 100368403				
EXAMINER MACARTHUR, SYLVIA				
ART UNIT		PAPER NUMBER		
1792				
MAIL DATE		DELIVERY MODE		
11/18/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/541,507

**Applicant(s)**

YOSHIDA ET AL.

**Examiner**

Sylvia R. MacArthur

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 June 2008 and 19 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 40-78 is/are pending in the application.
- 4a) Of the above claim(s) 51-56 and 68-78 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 40-50 and 57-67 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 40-50 and 57-67 have been considered but are moot in view of the amendments to the claims. Claim 40 wherein the abnormality detection part is recited as being configured to assess a processing abnormality in the substrate processing apparatus based on a combination of the plurality of control elements collected by the collection part and to detect a processing abnormality based on the assessing,. Claim 57 wherein the abnormality detection part configured to assess a processing abnormality in said processes based on said plurality of control elements collected by said collection part and to detect a processing abnormality based on the assessing. These amendments have led to the discussions below and the introduction of the prior art of Song et al (US 6,487,472).
2. Additionally, applicant argues that the prior art of Kenji et al fails to teach or even suggest a configuration of an apparatus or system which can provide an overall abnormality compensation based on assessment of overall operating control elements. See the English Translation of the Abstract wherein confirming abnormality comprises assessing and compensating see also sections [004] to [0011]. A plurality of control elements is interpreted as processing parameters such as the flow level, processing time, and flow rate as taught by Kenji. Song et al recites control elements as operation states see the abstract.
3. The double patenting rejections have been maintained but have been changed from the co-pending application (10/459,833) to US Patent 6,807,455 as applicant has updated the status of the co-pending application.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 40 -50 and 57-67 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of US 6,807,455 in view of Konishi et al US 6,145,519. Although the conflicting claims are not identical, they are not patentably distinct from each other because the co-pending application claims a substrate process apparatus, a computer (information processor), a collection part (receiving part), and an abnormality detection part (computing part), but fails to teach the specifics about the processing units, such as that the substrate is rotated and the processing steps performed therein.

The prior art of Konishi et al teaches a substrate processing unit wherein a semiconductor substrate is cleaned. Konishi et al teaches the use of rotator 3 see Figs. for examples Figs. 1a, 4c, and 5. Konishi et al also provides a teaching of using a recovery unit to recycle/circulation treatment solution. According to col. 7 lines 50-63, the concentration (specific gravity) is

monitored. HF is cited as a treatment fluid and water see co. 8 lines 58 and the abstract. The treatment solution flow rate is another control element taught by Konishi et al see col.6 lines 36-62. Regarding claims that recite the type of fluid discharged and the specific fluid are interpreted as matters of an intended use as the apparatus of the co-pending application and modified by using the processing units and monitoring the control elements taught by Konishi is not structurally limited by the type of fluid used. The motivation to modify the apparatus claimed by the co-pending application with Konishi et al is that rotation of the substrate helps to ensure a more uniform distribution of treatment fluid and monitoring the specific control elements of solution concentration, flow rate and discharge time will ensure that the process is performed automatically in an accurate reproducible manner. The motivation to provide a circulation system is that recycling/recovery of the treatment is conventional and known to allow for conservation of treatment fluids and save process costs as "fresh" treatment solution is unnecessary for each process run. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the apparatus claimed by the co-pending application with Konishi et al

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 40-44 and 57-61 are rejected under 35 U.S.C. 102(b) as being anticipated by Kenji et al (JP 08-145300).

Kenji et al teaches a substrate process apparatus, a computer (microcomputer MC comprises CPU, ROM, and RAM), a collection part (storage device 35), and an abnormality detection part alarm unit 55 and computing part see [022]. See Figs. 2, 8, and 11 that illustrate spin coater SC, see abstract. The control elements that are monitored are processing time see [008], flow rate [008], flow rate level, and processing time, see sections [004] to [0011]. Regarding claims that recite the type of fluid discharged and the specific fluid are interpreted as matters of an intended use as the apparatus of the Kenji et al is not structurally limit by the type of fluid used.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 45-50 and 62-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenji et al in view of Konishi et al (US 6,145,519).

10. The teachings of Kenji et al were discussed above. Kenji et al fails to teach that concentration is monitored and that the treatment solution is circulated. The prior art of Konishi et al teaches a substrate processing unit wherein a semiconductor substrate is cleaned. Konishi et al teaches the use of rotator 3 see Figs. for examples Figs. 1a, 4c, and 5. Konishi et al also provides a teaching of using a recovery unit to recycle/circulation treatment solution. According to col. 7 lines 50-63, the concentration (specific gravity) is monitored. HF is cited as a treatment fluid and water see co. 8 lines 58 and the abstract. The treatment solution flow rate is another

control element taught by Konishi et al see col.6 lines 36-62. Regarding claims that recite the type of fluid discharged and the specific fluid are interpreted as matters of an intended use as the apparatus of Kenji et al not structurally limit by the type of fluid used. The motivation to modify the apparatus claimed by the co-pending application with Konishi et al is that rotation of the substrate helps to ensure a more uniform distribution of treatment fluid and monitoring the specific control elements of solution concentration, flow rate and discharge time will ensure that the process is performed automatically in an accurate reproducible manner. The motivation to provide a circulation system is that recycling/recovery of the treatment is conventional and known to allow for conservation of treatment fluids and save process costs as "fresh" treatment solution is unnecessary for each process run. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the apparatus Kenji et al with Konishi et al.

11. Claims 45-50 and 62-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song et al (US 6,487,472) in view of Konishi et al US 6,145,519.

12. Song et al teaches a semiconductor device manufacturing facility with a diagnosis system. The facility comprises an etchant 76 (substrate processing apparatus), a computer collected data (host computer), and the system further comprises a collection part that monitors the flow rate (MFC 71) and pressure (pressure gauge 72) see Figures and col. 6-18. Abnormality detection part see abstract and diagnosis system 10 and col. 10 lines 20-28. Other control elements that are monitored are listed in the abstract. Song et al fails to teach that concentration is monitored and that the treatment solution is circulated. The prior art of Song et al teaches a substrate processing unit wherein a semiconductor substrate is etched (see etching chamber 76).

Konishi et al teaches a substrate processing unit wherein a semiconductor substrate is cleaned. Konishi et al teaches the use of rotator 3 see Figs. for examples Figs. 1a, 4c, and 5. Konishi et al also provides a teaching of using a recovery unit to recycle/circulation treatment solution. According to col. 7 lines 50-63, the concentration (specific gravity) is monitored. HF is cited as a treatment fluid and water see co. 8 lines 58 and the abstract. The treatment solution flow rate is another control element taught by Konishi et al see col.6 lines 36-62. Regarding claims that recite the type of fluid discharged and the specific fluid are interpreted as matters of an intended use as the apparatus of Kenji et al not structurally limit by the type of fluid used. The motivation to modify the apparatus of Song et al with Konishi et al is that rotation of the substrate helps to ensure a more uniform distribution of treatment fluid and monitoring the specific control elements of solution concentration, flow rate and discharge time will ensure that the process is perform automatically in an accurate reproducible manner. The motivation to provide a circulation system is that recycling/recovery of the treatment is conventional and known to allow for conservation of treatment fluids and save process costs as "fresh" treatment solution is unnecessary for each process run. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the apparatus Song et al with Konishi et al

### ***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-Th during the hours of 8 a.m. and 4:30 p.m.



14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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November 16, 2008

/Sylvia R MacArthur/

Primary Examiner, Art Unit 1792